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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,120	10/31/2003	Michael Schmidt	Q78116	8458

23373 7590 09/14/2006

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EXAMINER

LE, THI Q

ART UNIT PAPER NUMBER

2631

DATE MAILED: 09/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/697,120	SCHMIDT ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Thi Q. Le	2631	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/31/2003</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Priority*

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

### *Information Disclosure Statement*

2. The information disclosure statement (IDS) filed on 10/31/2003 was considered by the examiner.

### *Specification*

3. The disclosure is objected to because of the following informalities:
  - a) On **page 2 first paragraph** of the **specification**, replace “**6,25 ps**” with “**6.25 ps**” after “the time slot for a single bit is only”.Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 1, 2 and 6** are rejected under 35 U.S.C. 102(b) as being anticipated by **Widdowson et al. (“Polarisation guiding in ultralong distance soliton transmission”. Electronics Letters, IEE Stevenage, Volume 30, Issue 11, 26 May 1994 pages 879-880, ISSN: 0013-5194).**

Consider **claim 1**, Widdowson et al. clearly show and disclose, a receiver for an OTDM pulse train in which the pulses have alternating polarizations (read as, PDM/OTDM transmitted signal), wherein: a) a polarization insensitive optical switch (read as, optical time division demultiplexer) for isolating optical pulses within the pulse train, and b) a polarization selective element (read as, polarizer) for separating from the isolated pulses at least one component that has a single polarization (figure 3; page 880, left column, second paragraph).

Consider **claim 2, and as applied to claim 1 above**, Widdowson et al. further disclose, wherein a polarization controller for altering the polarization of the isolated pulses, the polarization controller being disposed between the optical switch and the polarization selective element (polarization controllers within the loop allowed accurate control of the signal State of Polarization) (figure 3; page 880, left column, second paragraph).

Consider **claim 6**, Widdowson et al. clearly show and disclose, a method for receiving an OTDM pulse train in which the pulses have alternating polarizations, the method comprising the steps of: a) isolating optical pulses from the pulse train by a polarization insensitive optical switch (read as, demultiplexing the optical PDM/OTDM signal using an optical time division demultiplexer), and b) separating from the isolated pulses at least one component that has a single polarization (read as, using a polarizer for separating different polarization states) (figure 3; page 880, left column, second paragraph).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject

matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. **Claims 3-5 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Widdowson et al. ("Polarisation guiding in ultralong distance soliton transmission". Electronics Letters, IEE Stevenage, Volume 30, Issue 11, 26 May 1994 pages 879-880, ISSN: 0013-5194) in view of Heismann et al. ("Automatic polarization demultiplexer for polarization-multiplexed transmission systems". Proceedings of the European**

**Conference on Optical Communication (ECOC) MONTREUX, SEPT. 12 - 16, 1993.**

**REGULAR PAPERS, ZURICH, SEV, CH, vol. 2 CONF. 19, 12 September 1993 (1993-09-12), pages 401-404).**

Consider **claim 3, and as applied to claim 2 above**, Widdowson et al. disclose the invention as described above; except for, wherein the polarization selective element is a polarization beam splitter having a first output port and a second output port, wherein the first output port emits a first component of the isolated pulses having a first polarization, and the second output port emits a second component of the isolated pulses having a second polarization that is distinct from the first polarization.

In related art, Heismann et al. disclose a polarization demultiplexer for polarization-multiplexed fiberoptic transmission systems. Wherein, the receiver includes an erbium-doped fiber amplifier, an automatic polarization transformer and a fiberoptic polarization splitter (read as, beam splitter). The two outputs of the ports of the splitter feed into conventional 10-Gb/s receivers with photo diodes (figure 1; page 402 second paragraph).

It would have been obvious for a person of ordinary skill in the art at the time of the invention to incorporate the teaching of Heismann et al. with Widdowson et al. In the effort to double transmission capacity, data are modulated into light wave with different polarization. Thus it is necessary at the receiver to have a polarization splitter to separate data for further processing.

Consider **claim 4 and as applied to claim 3 above**, Widdowson et al. as modified by Heismann et al. further disclose, wherein the first output port is connected to a pulse detector (read as, photo diode) for extracting digital information, and the second output port is connected

to a power detector (read as, the time averaged mixing product measures as optical power of the selected channel) that forms, together with the polarization controller and the polarization beam splitter, a control feedback loop (read as, the measurement of optical power of selected can serve as the feedback signal for the automatic polarization transformer to adjust the input State of Polarization for maximum power of the selected signal) for controlling the polarization controller (Heismann et al.; figure 1; page 403 left column first paragraph).

Note, Heismann et al. disclose a feedback back loop for controlling the polarization transformer in-order to achieve maximum optical power of selected signal; but it could be understood by a person of ordinary skill in the art that the same method can be applied to reduce the optical power of selected signals. Thus, eliminating unwanted signal from data stream.

Consider **claim 5, and as applied to claim 4 above**, Widdowson et al. as modified by Heismann et al. further disclose, wherein a clock recovery module (read as, automatic clock recovery circuit) that is connected to the pulse detector for extracting a clock signal to be fed to the optical switch (Heismann et al.; figure 1; page 403 left column first paragraph).

Consider **claim 7, and as applied to claim 6 above**, Widdowson et al. disclose the invention as described above; except for, wherein the polarizations of the isolated pulses are altered by a polarization controller before the isolated pulses are separated into components having a single polarization.

In related art, Heismann et al. disclose a polarization demultiplexer for polarization-multiplexed fiberoptic transmission systems. Wherein, the receiver measure the optical power of the selected signal and use it as a feedback signal for the polarization transformers to control the State of Polarization, SOP, of the signal. The polarization transformer controls the SOP of the

signal before it is divided into separate polarizations by the polarization splitter (figure 1; page 403 left column first paragraph; and right column last paragraph).

It would have been obvious for a person of ordinary skill in the art at the time of the invention to incorporate the teaching of Heismann et al. with Widdowson et al. Since Heismann et al. show that without active SOP corrective means the error rate of the system increase over time until the receiver fails to receive the transmitted signal. But with SOP correction active, error rate for transmission can be maintain.

Consider **claim 8, and as applied to claim 6 above**, Widdowson et al. disclose the invention as described above; except for, wherein a first and a second component having different polarizations are separated from the isolated pulses, wherein the first component is used for extracting digital information and the second component is used for controlling the polarization controller in a control feedback loop.

In related art, Heismann et al. disclose a polarization demultiplexer for polarization-multiplexed fiberoptic transmission systems. Wherein, the receiver includes an erbium-doped fiber amplifier, an automatic polarization transformer and a fiberoptic polarization splitter (read as, beam splitter). The two outputs of the ports of the splitter feed into conventional 10-Gb/s receivers with photo diodes (figure 1; page 402 second paragraph). Also, the receiver measure the optical power of the selected signal (read as, second component) and use it as a feedback signal for the polarization transformers to control the State of Polarization, SOP, of the signal. (figure 1; page 403 left column first paragraph).

It would have been obvious for a person of ordinary skill in the art at the time of the invention to incorporate the teaching of Heismann et al. with Widdowson et al. Since Heismann



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et al. show that without active SOP corrective means the error rate of the system increase over time until the receiver fails to receive the transmitted signal. But with SOP correction active, error rate for transmission can be maintain. Thus, it is necessary to have a feedback loop for monitoring the output signal.

Consider **claim 9, and as applied to claim 8 above**, Widdowson et al. as modified by Heismann et al. further disclose, wherein the polarization controller is controlled by the control feedback (read as, the measurement of the optical power of the selected signal) loop such that the optical power of the second component is minimal (read as, the polarization transformer adjust the SOP so that output optical power is maximum) (Heismann et al.; figure 1; page 403, paragraphs 1 and 2).

Note, Heismann et al. disclose a feedback back loop for controlling the polarization transformer in-order to achieve maximum optical power of selected signal; but it could be understood by a person of ordinary skill in the art that the same method can be applied to reduce the optical power of selected signals. Thus, eliminating unwanted signal from data stream.

### ***Conclusion***

10. Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

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P.O. Box 1450  
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**Hand-delivered responses** should be brought to

Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314


11. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Thi Le whose telephone number is (571) 270-1104. The Examiner can normally be reached on Monday-Friday from 7:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

*Thi Le*

  
RAFAEL PEREZ-GUTIERREZ  
SUPERVISORY PATENT EXAMINER  
9/12/06